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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/528,815	03/23/2005	Takashi Ishii	268185US3PCT	4193
22850	7590	08/13/2007		
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER KRUER, STEFAN	
			ART UNIT 3654	PAPER NUMBER
			NOTIFICATION DATE 08/13/2007	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com  
oblonpat@oblon.com  
jgardner@oblon.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/528,815	<b>Applicant(s)</b> ISHII ET AL.	
	<b>Examiner</b> Stefan Krueer	<b>Art Unit</b> 3654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 12 June 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 30 - 43 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 30 - 43 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12 June 2007</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 30 – 33, 35 – 37, 40 and 43** are rejected under 35 U.S.C. 103(a) as being unpatentable over Aulanko et al (5,429,211) in view of Root et al (5,957,243).

**Re: Claim 30**, Aulanko et al disclose:

- a cage (1) guided by a pair of right and left-side guide rails (10);
- a traction sheave (7) disposed within a top of the elevator shaft, driven in a rotational axis, whereby the rotational axis of their traction sheave extends in a forward and rearward direction (Col. 8, Line 42), said traction sheave disposed behind and near one of the guide rails (Fig. 2) and a rear side wall when viewed vertically from above;
- a driving apparatus (6) disposed behind and coaxially with the traction sheave;
- a counterweight (9) guide by a pair of guide rails (11) for vertical motion;
- a pair of right and left cage-side sheaves (4 and 5) that suspend the cage and extend at a direction angle close to that of the rotational axis of the traction sheave (Fig. 4b);
- and a hoist rope (3) composed of a plurality of ropes (Fig. 5) wound around the traction sheave, said hoist rope suspending both cage and counterweight; however, Aulanko et al are silent regarding a cage-side sheave supporting beam and a cage frame.

Attention is directed to Root et al who teach:

- a cage-side sheave supporting beam (14);

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- a cage frame (18, 20) having an upper beam (20) extending in a right and left direction above an upper surface of their cage (16);
- whereby said cage-side sheave supporting beam supports a pair of right and left cage-side sheaves (30, 30) at both ends thereof,
- said cage-side sheave supporting beam being inserted in a vertical gap between their upper beam and said upper surface of the cage in a horizontal manner as well as connected to a center portion of the upper beam with a center portion thereof such that a side surface of one of the pair of right and left cage-side sheaves is disposed in a vicinity of a rear side wall of the upper beam and the other of the pair of right and left cage-side sheaves is disposed in a vicinity of a front side wall of the upper beam (Fig. 4a), and one of the pair of right and left cage-side sheaves is disposed near the traction sheave when viewed vertically from above, as the feature of their "... variable positioning of the tandem sheave assembly (that) facilitates the installation of the tandem sheave assembly" (Col. 1, Line 56).

It would have been obvious to one of ordinary skill in the art to modify the reference of Aulanko et al with the teaching of Root et al for the benefit reducing installation costs and enhance "operability of the elevator system".

**Re: Claim 31**, Aulanko et al disclose an elevator system having no machineroom and his driving apparatus as disposed between the traction sheave and a rear inner wall of the elevator shaft (Col. 8, Line 37).

**Re: Claim 32**, Aulanko et al disclose their driving apparatus (6) is configured similar to a cylinder disposed concentric with their traction sheave (7) between the traction sheave and a rear inner wall of their elevator shaft (Col. 8, Line 41).

**Re: Claim 33**, though neither Aulanko et al nor Root et al disclose or teach said cylinder having a diameter effectively equal to that of their traction sheaves, the disclosure of the instant invention acknowledges such as known in the art (Fig. 5).

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**Re: Claim 35**, Aulanko et al disclose the cage-side sheaves being disposed near the right and left sidewalls of the cage, respectively (Fig. 2).

**Re: Claim 36**, Aulanko et al disclose the disposition of the cage-side sheaves within a vertical projection of the cage as "...obvious that the hoisting ropes need not necessarily be passed under the car" (Col. 8, Line 30 and Fig. 2).

**Re: Claim 37**, Aulanko et al disclose the cage-side sheaves disposed symmetrically with respect to the center of the cage as depicted in Figure 4b and furthered by "Passing the ropes diagonally or otherwise obliquely ... which (sic) is an advantageous solution ...to ensure that the car is symmetrically suspended on the ropes with respect to the center of mass of the car" (Col. 8, Line 44).

**Re: Claim 40**, Aulanko et al disclose the cage-side rails extending to the top of the shaft (Fig. 4a, per mounting to 16).

**Re: Claim 43**, Aulanko et al are silent regarding a cage-side sheave supporting beam.

Root et al teach their cage-side sheave supporting beam having an upper frame that is connected at its center portion to a center portion of a lower surface of their upper frame, in keeping with the variable positioning for installation.

**Claims 34 and 38 - 39** are rejected under 35 U.S.C. 103(a) as being unpatentable over Aulanko et al in view of Root et al, as applied to Claim 30, and in further view of Wittur et al (US 2004/0129501, earlier published as WO 02/053486).

**Re: Claim 34**, though both Aulanko et al and Root et al anticipate a plurality of ropes, they are silent regarding their diameters.

Attention is directed to Wittur et al who teach their ropes having a diameter of 5 to 7 mm and preferably less than 6 mm (Para. 0018), thereby affording incrementally finer sizing for the anticipated (rated) service loads of the cage as well as enhanced effectiveness in lubricating and cleaning the ropes, when compared to the implementation of ropes of larger diameters.

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It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the reference of Aulanko et al and Root et al with the teaching of Wittur et al to gain the benefits of these commercial and performance features.

**Re: Claims 38 - 39**, though the driving apparatus of Aulanko et al and Root et al are mounted outside of the bounds of their cages, the corresponding device of Wittur et al partially overlaps the cage when seen from a vertical direction (Figures 2 and 3).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the reference of Aulanko et al and Root et al with the teachings of Wittur et al in order to minimize the twisting of the hoisting ropes for the enhancement of service life as well as the reduction in torque and the associated installation, operation and maintenance costs.

**Claims 41 - 42** are rejected under 35 U.S.C. 103(a) as being unpatentable over Aulanko et al in view of Root et al, as applied to Claim 30, and in further view of Nakagaki et al (6,598,707).

**Re: Claim 41**, the traction sheave of Aulanko et al is mounted above the guide rails and Root et al are silent of the positioning of their traction sheave.

Attention is directed to Nakagaki et al who teach their traction sheave (44) disposed below the top (20b) of his cage-side guide rails whereby the cage can travel vertically above the drive, thereby affording access to the traction sheave and drive from the roof of the cage for maintenance as well as a reduced a elevator shaft length.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the reference of Aulanko et al and Root et al with the teachings of Nakagaki et al for the benefits of reduction in shaft length and facilitating maintenance.

**Re: Claim 42**, the driving apparatus of Aulanko et al is mounted above the guide rails and Root et al are silent of the mounting of their driving apparatus.

Attention is directed to Nakagaki et al who teach their driving apparatus (40) supported by their pair of front and rear counterweight-side guide rails (31, 32) for the features of reduced shaft length and stable mounting of their drive.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the reference of Aulanko et al and Root et al with the teachings of Nakagaki et al for space-saving and operability benefits.

### ***Response to Arguments***

Applicant's arguments filed 14 May 2007 have been fully considered but they are not persuasive.

With respect to the applicant's arguments that the prior art of reference does not suggest a traction sheave disposed behind and near one of the pair of right and left cage-side guide rails and near a rear side wall of the upper beam *when viewed from above*, attention is directed to the reference of Aulanko et al as modified by Root et al, wherein Root et al teach an upper beam whereby the traction sheave of Aulanko et al, and Root et al, when viewed from above, is disposed near a rear side wall of the upper beam. Root et al teach in their depiction of Figure 4a and their disclosure, Col. 2, Lines 49 – 60, the advantage of a minimal angle  $\Theta$ , which in view of Aulanko et al, places the traction sheave near the rear side wall of the upper beam.

With respect to the term "near" and the limitation "when viewed from above", whether or not the cage-side sheaves are mounted below the upper beam is inconsequential.

Finally, the touted features of the instant invention are disclosed and taught by Aulanko et al (Col. 1, Line 59 – Col. 2, line 2) and Root et al (Col. 1, line 67).

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Bauer (6,742,628) and Narumi et al (5,533,595) is cited for reference of an elevator having a driving apparatus with traction sheave disposed below the upper region of car-side guide rails and a cage –side supporting beam for the elimination of vibration and noise, respectively.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stefan Kruer whose telephone number is 571.272.5913. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Cuomo can be reached on 571.272.6856. The fax phone number for the organization where this application or proceeding is assigned is 571.273.8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866.217.9197 (toll-free).

SHK

6 August 2007



GENE O. CRAWFORD  
SUPERVISORY PATENT EXAMINER